

ABSTRACT OF THE DISCLOSURE

Strains of *Leishmania* and other macrophage-infecting parasites are provided which express the GM-CSF gene which are useful in treating hosts infected by the parasite and in protecting hosts against disease caused by infection of hosts by parasites. The parasites are reduced in their ability to infect or survive in macrophages and hence are attenuated. At least one gene of the parasite contributing to the virulence thereto may be functionally disabled. The attenuated strains may be used for administration to a host (a) to treat a host infected by *Leishmania* or (b) to confer protection against disease caused by a virulent *Leishmania* strain, or as a diagnostic reagent.